

**In the Claims:**

Please amended claims 1, 2, 4, 8, 12-13, and 18. Please add new claims 21-23. The claims are as follows:

1. (Currently Amended) An integrated circuit comprising:

a plurality of cores operatively attached to at least one transmitter and at least one receiver;

an optical transmission network embedded within at least one wire level of the integrated circuit, said optical transmission network comprising a plurality of optical fibers;

said at least one transmitter for sending data on said optical transmission network via at least a first optical fiber of said plurality of optical fibers; and  
said at least one receiver for receiving data on said optical transmission network via at least a second optical fiber of said plurality of optical fibers.

2. (Currently Amended) The integrated circuit of claim 1, wherein the at least one wire level is a plurality of wire levels, and wherein the transmission network is embedded in the plurality of wire levels.

3. (Original) The integrated circuit of claim 1, wherein said at least one transmitter sends data between two cores of said plurality of cores across said optical transmission network.

4. (Currently Amended) The integrated circuit of claim 1, wherein said receiver receives data between two cores of said plurality of cores across said optical transmission network.

5. (Original) The integrated circuit of claim 1, wherein said optical network includes a plurality of optic planes.

6. (Original) The integrated circuit of claim 5, wherein said plurality of optic planes includes one of an oxide layer and a glass layer.

7. (Original) The integrated circuit of claim 5, wherein a base of said of optic planes is non-reflective.

8. (Currently Amended) The integrated circuit of claim 5, wherein data can be sent and received between said plurality of optic planes.

9. (Original) The integrated circuit of claim 1, wherein said at least one transmitter comprises a LED.

10. (Original) The integrated circuit of claim 1, wherein said optical network is adapted to transmit multiple frequencies of light simultaneously.

11. (Original) The integrated circuit of claim 5, wherein said optical network further comprises a plurality of optical vias.

12. (Currently Amended) A method of transmitting signals within an integrated circuit comprising:

providing said integrated circuit, wherein said integrated circuit includes a plurality of cores and a plurality of optical paths, wherein said plurality of optical paths comprises a plurality of optical fibers;

selecting an optical path from said plurality of optical paths for transmission of data; and transmitting data on said selected optical path.

13. (Currently Amended) The method of claim 12, wherein said plurality of optical paths is comprised of ~~one of~~ glass and or oxide.

14. (Original) The method of claim 12, wherein transmitting data includes data from an optical transmitter.

15. (Original) The method of claim 12, wherein transmitting data includes data on an optical receiver.

16. (Original) The method of claim 12, wherein transmitting include propagating different frequencies of light on said selected optical path.

17. (Original) The method of claim 12, wherein said transmitted data an electromagnetic radiation with a frequency in a range from about 10<sup>11</sup> Hz to about 7.5 x 10<sup>4</sup> Hz.

18. (Currently Amended) An integrated circuit comprising:

an optical transmission network within said circuit, further wherein said optical transmission network is wholly contained within a single chip of said integrated circuit;  
a plurality of cores operatively attached to said optical transmission network; and  
a plurality of controllers operatively attached to said optical transmission network and said plurality of cores.

19. (Original) The integrated circuit of claim 18, wherein said plurality controllers are adapted to select an optical transmission path from said optical transmission network for transmission of data.

20. (Original) The integrated circuit of claim 18, wherein said optical network comprises a plurality of optical planes.

21. (NEW) The integrated circuit of claim 1, wherein said optical transmission network is wholly contained within a single chip of said integrated circuit.

22. (NEW) The integrated circuit of claim 1, wherein said first optical fiber and said second optical fiber are a same optical fiber.

23. (NEW) The integrated circuit of claim 18, wherein said optical transmission network comprises a plurality of optical fibers.